DRILL HOLES

BORDER REV. DATE: June 1, 2004

PROJECT DESCRIPTION

I. GENERAL

This project involves the modification of an existing Traffic Control Signal with street lighting and interconnect at the intersection of MD 189 (Falls Rd) and Bells Mill Rd in Montgomery County. A new mast arm pole is necessary in the northeast quadrant as a result of the construction of a bike path. Also, the pedestrian signals shall be upgraded to Countdown pedestrian signals with audible pushbuttons at this intersection. MD 189 (Falls Rd) is assumed to run in a north-south direction.

II. INTERSECTION OPERATION

1. The intersection shall continue to operate in a NEMA four-phase, semi-actuated mode, with the MD 189 (Falls Rd) approaches running concurrently. The Exclusive/Permissive left turn phase for the southbound approach of MD 189 (Falls Rd) shall remain in operation. A Countdown pedestrian phase with audible pushbuttons on recall shall be installed across the east leg of Bells Mill Road. A new farside sampling station on the south leg of MD 189 (Falls Rd) shall be provided at this intersection. The Bells Mill Rd approach shall also continue to run in its own phase.
2. The existing full-traffic-actuated, eight-phase controller with all necessary equipment housed in a NEMA size "5" pole-mounted cabinet shall be utilized at this intersection.
3. Montgomery County signal shop shall install APS control unit into controller cabinet. The Contractor shall deliver the Control Unit and audible pushbuttons to the Montgomery County Signal Shop for testing and programming.

III. SPECIAL NOTES

1. The Contractor shall be responsible for terminating all signal cables, to the appropriate terminals and shall properly label each cable.
2. All controller cabinet wiring will be performed by Montgomery County Forces. Contact Kamal Hamud at (240) 777-8761 seventy-two hours in advance of intended work.
3. All underground and overhead utilities shown on these plans are schematic only and may not be complete. The Contractor shall be responsible for notifying Miss Utility prior to construction so that all utilities may be located in the field. If the Contractor perceives that a conflict between the utilities and the traffic signal will occur, the Contractor shall notify the Project Engineer immediately so that the conflict may be resolved.

4. APS will function as follows:

TO CROSS BELLS MILL ROAD

a. When pedestrian locates and presses pushbutton for an extended time, the pushbutton unit will be "Wait to cross Bells Mill at Falls."

b. When WALK phase begins, the message will be a rapid tick which will last for the duration of the WALK phase.

The contact persons for District #3 (Montgomery County) are as follows:

Mr. Brian Young
Assistant District Engineer - Traffic
Phone: (301) 513-7318

Mr. Richard L. Daff, Sr.
Chief, Traffic Operations Division
Phone: (410) 787-7630

Mr. Vernon Stinnett
Assistant District Engineer - Maintenance
Phone: (301) 513-7304

Mr. Ed Rodenhizer
Manager, Signal Operations Section
410-787-7652

Mr. Augie Rebish
Assistant District Engineer - Utility
Phone: (301) 513-7350

Sonny Bailey
Manager, Sign Shop Operations
410-787-7676

EQUIPMENT LIST

A. EQUIPMENT TO BE SUPPLIED BY MONTGOMERY COUNTY DEPARTMENT OF TRANSPORTATION AND INSTALLED BY THE CONTRACTOR.

ITEM NO.	DESCRIPTION	QUANTITY
8088	Pedestrian pushbutton and pedestrian education R10-3(1) sign. (Note: Sign to read "PUSH BUTTON TO CROSS BELLS MILL RD")	2 Each
8088	R1-2 (mod) "YIELD / TO BIKES/PEDS IN CROSSWALK", sign (30"x40") ground mounted.	2 Each
8088	R9-5(mod) "Bike (symbol) USE / PED SIGNAL" sign, (12" x 18") ground mounted with hardware.	2 Each

B. EQUIPMENT TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR.

ITEM NO.	DESCRIPTION	QUANTITY
1001	Maintenance of Traffic	1 Day
2002	Test pit excavation.	3 C.Y.
8001	Concrete foundation.	3.9 C.Y.
8003	1" galvanized steel electrical conduit (detector wire sleeve).	20 L.F.
8023	3" polyvinyl chloride electrical conduit (Schedule 80) (trenched).	175 L.F.
8028	4" polyvinyl chloride electrical conduit (Schedule 80) (pushed). (To be bored).	150 L.F.
8043	Ground rod, 3/4" diameter x 10' length with clamp.	2 Each
8060	Loop wire (No. 14 A.W.G.) encased in 1/4" flexible tubing.	1120 L.F.

EQUIPMENT LIST (cont)

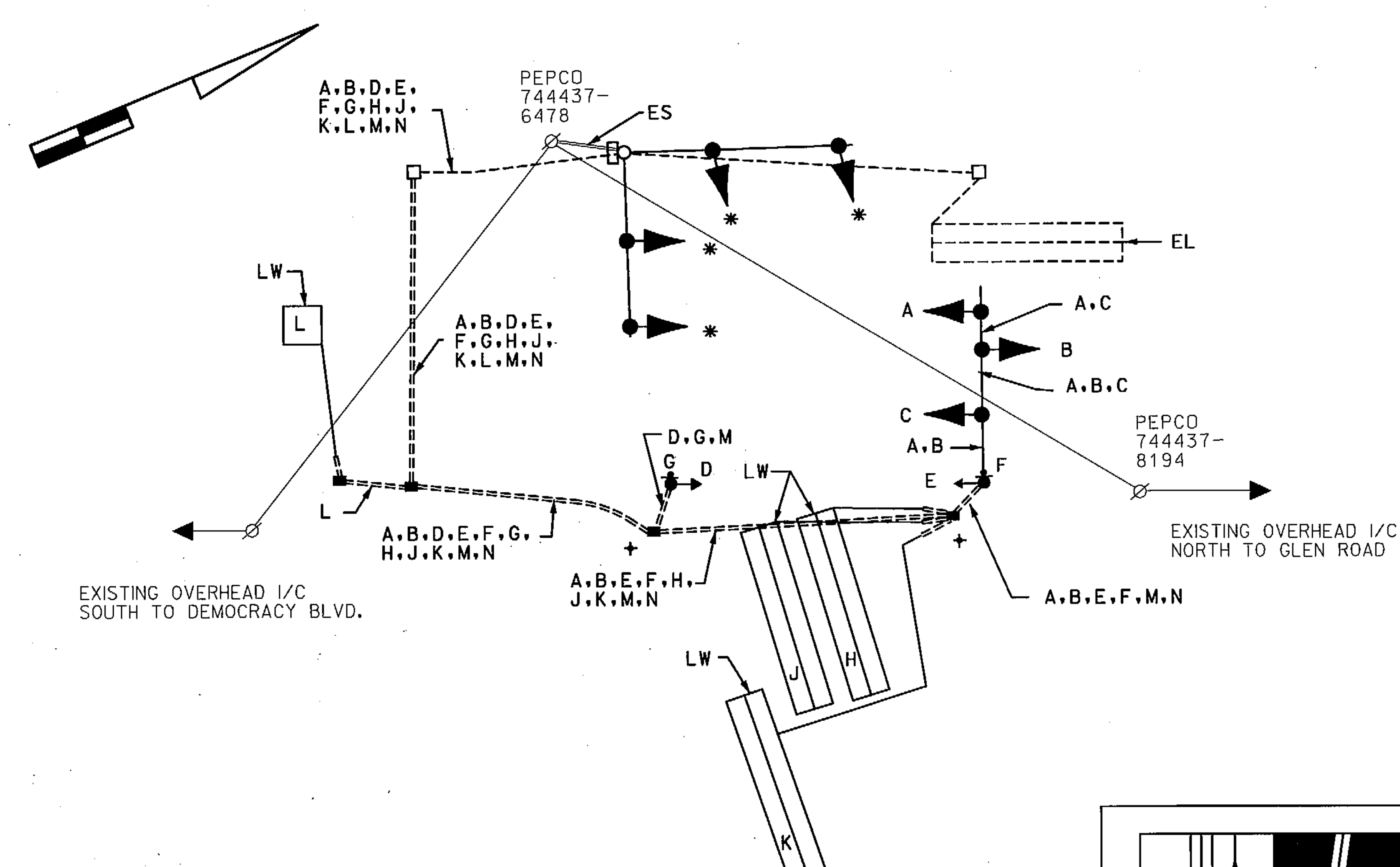
B. EQUIPMENT TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR.

ITEM NO.	DESCRIPTION	QUANTITY
8063	Canoga 4-conductor electrical cable (No. 14 A.W.G.) (shielded).	910 L.F.
8064	2-conductor electrical cable (No. 14 A.W.G.).	465 L.F.
8066	5-conductor electrical cable (No. 14 A.W.G.).	480 L.F.
8067	7-conductor electrical cable (No. 14 A.W.G.).	600 L.F.
8136	Traffic signal handbox (pullbox).	4 Each
8137	Sawcut.	275 L.F.
8153	Removal and salvage of signs less than 50 S.F.	1 Each
8162	Removal and salvage of traffic signal mast arm and pole including foundation.	1 Each
8166	Removal of handbox.	3 Each
8167	Removal and salvage of any signal head.	7 Each
Neg.	Remove existing pavement markings.	345 L.F.
Neg.	Remove existing pavement markings arrows.	1 Each
Neg.	Furnish and install white heat applied thermoplastic pavement marking arrows. (left)	1 Each
Neg.	12" white heat applied permanent preformed thermoplastic pavement marking.	155 L.F.
Neg.	24" white heat applied permanent preformed thermoplastic pavement marking.	35 L.F.
	Steel pole with 15' "T" and 38' mast arm. Anchor bolts will be 1½" x 54".)	1 EA
	10' breakaway pedestal pole with transformer base.	1 EA
	Furnish and install 12" vehicular LED traffic signal head (R,Y,G)	5 Each
	Furnish and install 12" vehicular LED traffic signal head (R,Y,G,YA,GA)	2 Each
Neg.	Furnish and install 16" LED Countdown pedestrian signal head.	2 Each
Neg.	5" white permanent thermoplastic pavement marking.	325 L.F.
Neg.	5" yellow permanent thermoplastic pavement marking.	200 L.F.
	Tubular steel post	2 EA
	2 wire Central Control unit	1 EA
	Audible/tactile pedestrian pushbutton station & signs.	2 EA
	Remove lighting equipment on mast arm pole.	1 EA

PHASE CHART

	1	2	3	4	5	6	7	8	9	
PHASE 2 & 5	R	R	◄G-/G	◄G-/G	G	R	R	DW	DW	
2 & 5 CHANGE	R	R	◄Y-/G	◄Y-/G	G	R	R	DW	DW	
PHASE 2 & 6	G	G	G	G	G	R	R	WK	WK	
PED CLEAR / COUNTDOWN	G	G	G	G	G	R	R	FL/DW	FL/DW	
2 & 6 CHANGE	Y	Y	Y	Y	Y	R	R	DW	DW	
PHASE 4	R	R	R	R	R	G	G	DW	DW	
4 CHANGE	R	R	R	R	R	Y	Y	DW	DW	
FLASHING OPERATION	FL/Y	FL/Y	FL/Y	FL/Y	FL/Y	FL/R	FL/R	DARK	DARK	

WIRING DIAGRAM



WIRING KEY

- A, B } 7-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G)
- C, D, E } 5-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G)
- F, G } 2-CONDUCTOR ELECTRICAL CABLE (NO. 14 A.W.G)
- H, J, K, L } 4-CONDUCTOR CANOGA CABLE (NO. 14 A.W.G) ALUMINUM SHIELDED
- M - STRANDED BARE COPPER GROUND WIRE (NO. 6 A.W.G.)
- EL - LOOP WIRE (NO. 14 A.W.G.) EXISTING
- LW - LOOP WIRE (NO. 14 A.W.G.)
- ES - EXISTING SERVICE TO BE MAINTAINED BY PEPCO
- * - USE EXISTING CABLE
- + - GROUND ROD

STREET TRAFFIC STUDIES, LTD.
400 Crain Hwy.,N.W.
Glen Burnie,MD 21061
Ph (410) 590-5500
Fax (410) 590-6637

5151cGI.dgn

SHA
STATE OF MARYLAND
DEPARTMENT OF TRANSPORTATION
STATE HIGHWAY ADMINISTRATION

MD 189 AND BELLS MILL ROAD

POTOMAC, MARYLAND

GENERAL INFORMATION SHEET

SCALE NONE DATE 11/30/09 CONTRACT NO.

DESIGNED BY RRZ COUNTY MONTGOMERY

DRAWN BY RC LOGMILE 15018903.54

CHECKED BY [signature] 12/09 TIMS NO. 1807

F.A.P. NO. TOD NO.

TS NO. 2050C | DRAWING NO. 2 OF 2 | SHEET NO. OF

PLOTTED: $DATETIME$
FILE: $FILE$

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